

Appendix B : 37 C.F.R. 1.132 Declaration titled “Variable half-life of metastable Indium 115m after photoactivation using a 6 MeV cLINAC”.

The following appendix is a declaration section 37 C.F.R. 1.132

I, Robert DESBRANDES, declare that I am warned that willful false statements and the likes are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

I declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true.

Robert DESBRANDES

S-Signed: /Robert DESBRANDES/

Original submitted with my USPTO efilng electronic signature.

The measurements were carried out in Louisiana State University, Baton Rouge, Louisiana on November 8th, 2003:

- The irradiation of the Indium foil with a 6 MeV cLINAC was operated by a technician at the veterinary School of LSU, witnessed by me, and Professor Daniel Lee Van Gent.
- I, and Professor Daniel Lee VAN GENT, have been operating the gamma spectrometer which was a Canberra high purity intrinsic Germanium gamma counting system enclosed in an Orthee low level background shield made of lead, copper and steel;
- I interpreted the data reported in the following pages.

The Indium 115 samples used in the experiments were:

25 mm wide, 75 mm long, 0.3 mm thick.

The abundance of In 115 was 95.72%, purity 99.99%.

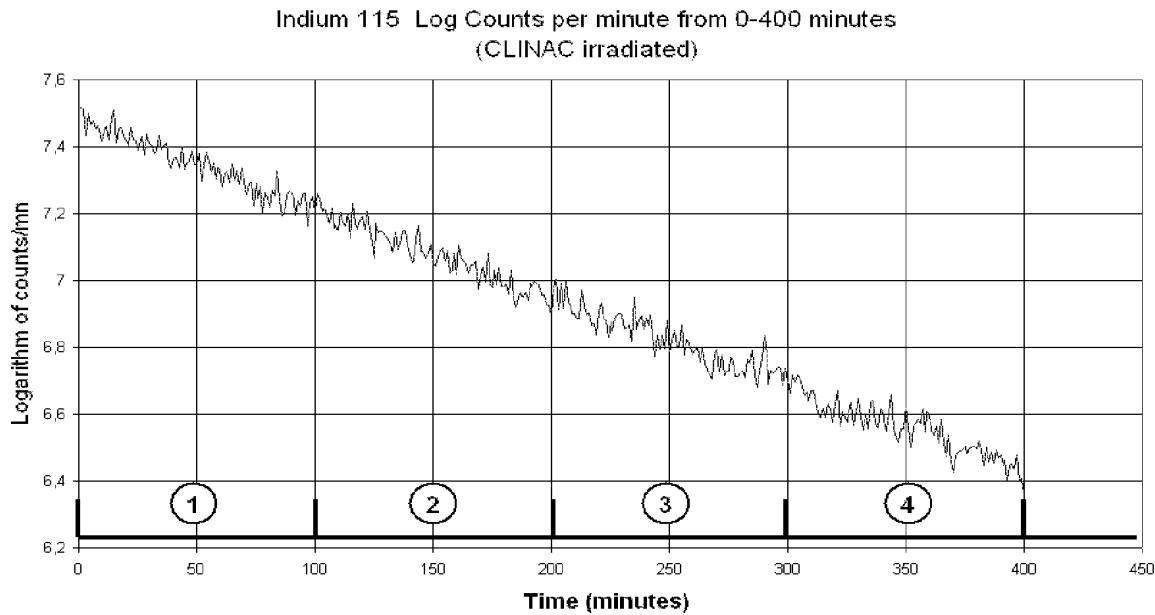
The CLINAC accelerator was a medical type instrument.

The samples were irradiated to 20 Gray at the rate of 0.01 Gray per second during several lapses of time.

The gamma head of CLINAC was located one meter above the table on which the samples were led.

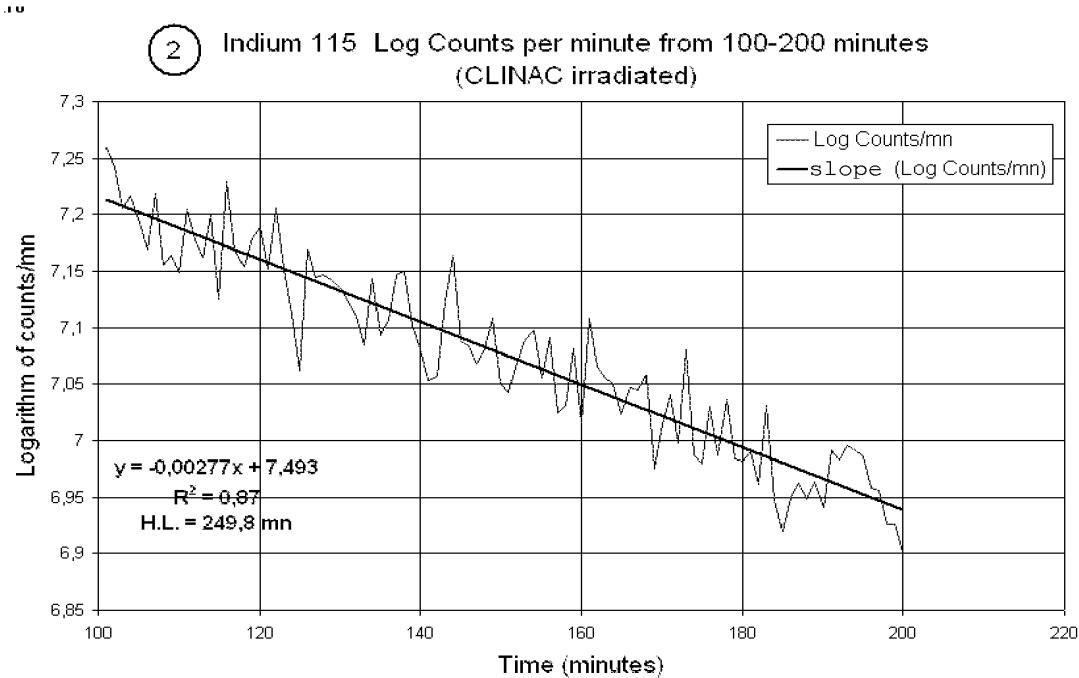
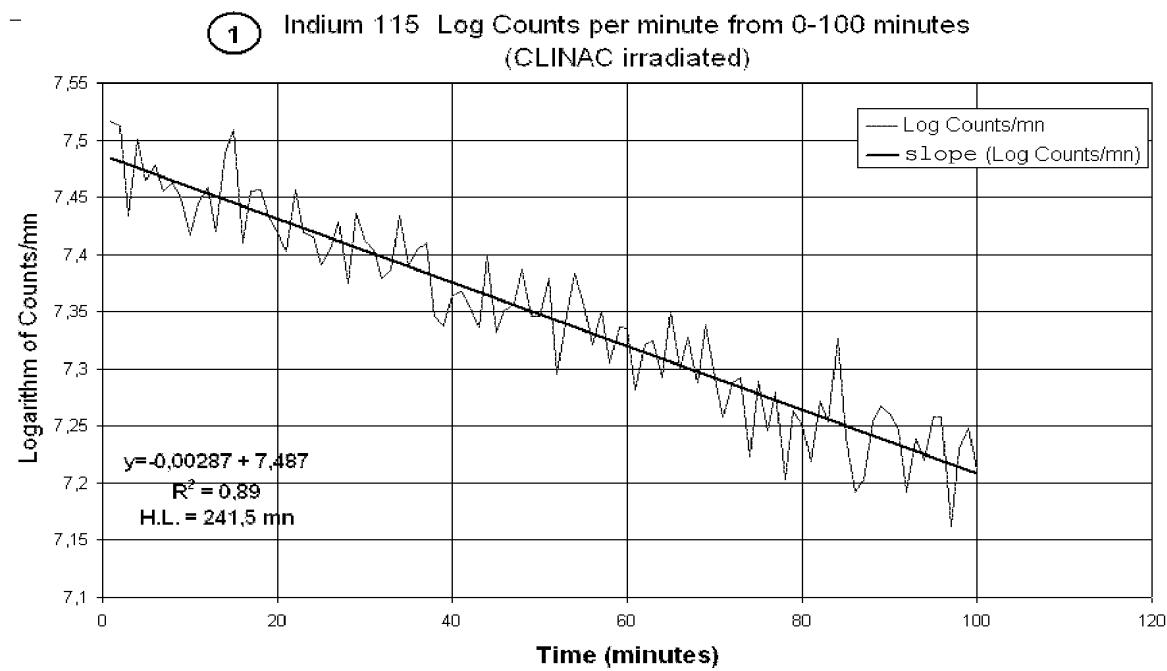
The beam was collimated in such a way that the field was the size of our samples.

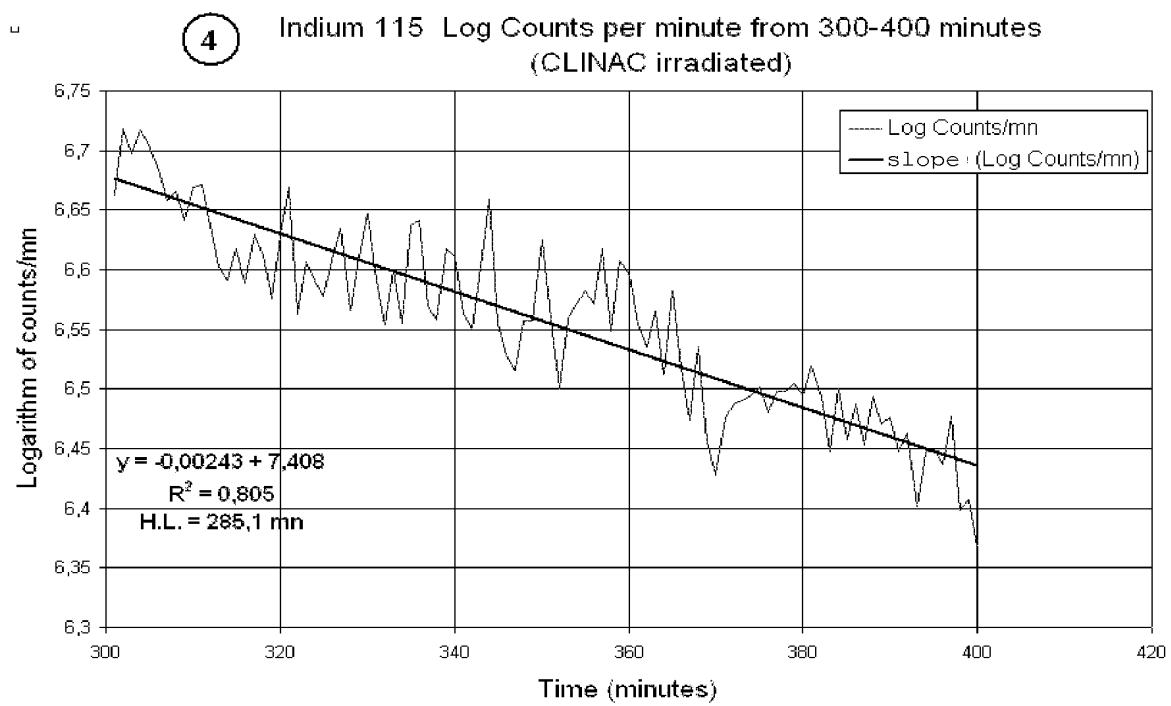
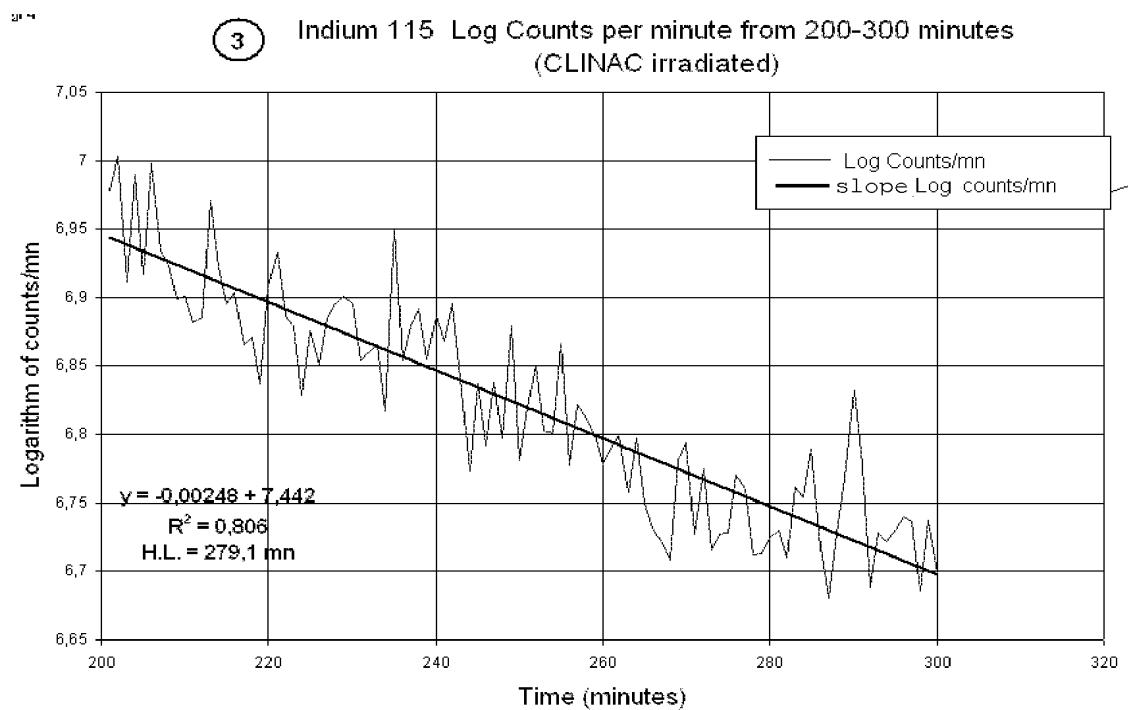
The following graph is the recording of the counts per minute emitted at 336 keV by the excited isomer nuclide: Indium 115^m.

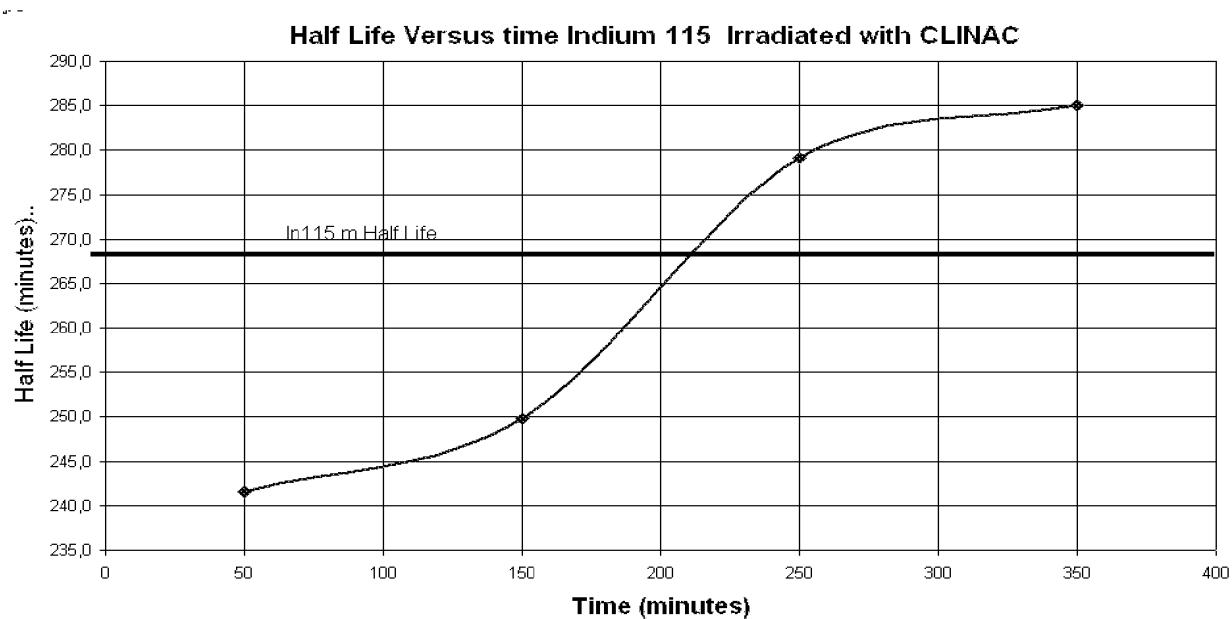


The variable half-life is computed over intervals of 100 minutes:

The following graphs display the logarithm of the deexcitation gamma rays counts per minutes of the "entangled sample" product. A linear regression equation is used to compute the slope and the regression coefficient (R^2). The variable half-life (H.L.) is noted λ and the slope is noted P (probability of deexcitation per minute) in the equation of paragraph [0002] which are all well known to the one skilled in the art.







Measurement data:

| min | Counts | LN Counts |
|-----|--------|-------------|
| 1 | 1839 | 7,516944598 |
| 2 | 1831 | 7,512355358 |
| 3 | 1693 | 7,434038811 |
| 4 | 1809 | 7,500789264 |
| 5 | 1746 | 7,465260269 |
| 6 | 1768 | 7,477841772 |
| 7 | 1728 | 7,454962975 |
| 8 | 1743 | 7,4634491 |
| 9 | 1718 | 7,448852073 |
| 10 | 1664 | 7,417105815 |
| 11 | 1712 | 7,445166357 |
| 12 | 1735 | 7,458607061 |
| 13 | 1668 | 7,41963235 |
| 14 | 1787 | 7,48849495 |
| 15 | 1825 | 7,509477722 |
| 16 | 1654 | 7,410758386 |
| 17 | 1728 | 7,454962975 |
| 18 | 1732 | 7,45678379 |
| 19 | 1693 | 7,434038811 |
| 20 | 1667 | 7,418996816 |
| 21 | 1640 | 7,402451521 |
| 22 | 1732 | 7,45678379 |
| 23 | 1667 | 7,418996816 |
| 24 | 1662 | 7,415837142 |
| 25 | 1621 | 7,390829366 |
| 26 | 1644 | 7,405015305 |
| 27 | 1684 | 7,42905189 |
| 28 | 1596 | 7,375117924 |
| 29 | 1696 | 7,435898091 |
| 30 | 1655 | 7,411393133 |
| 31 | 1642 | 7,403731189 |
| 32 | 1602 | 7,379070548 |
| 33 | 1614 | 7,386272564 |
| 34 | 1693 | 7,434038811 |
| 35 | 1619 | 7,389526893 |
| 36 | 1643 | 7,40437041 |
| 37 | 1654 | 7,410758386 |
| 38 | 1549 | 7,345668216 |
| 39 | 1537 | 7,337483639 |
| 40 | 1578 | 7,36384379 |
| 41 | 1583 | 7,367171812 |
| 42 | 1564 | 7,355136183 |
| 43 | 1535 | 7,336109749 |
| 44 | 1634 | 7,398590418 |
| 45 | 1528 | 7,331989801 |
| 46 | 1558 | 7,351087621 |

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| 47 | 1567 | 7,357147954 |
| 48 | 1614 | 7,386272564 |
| 49 | 1551 | 7,346345638 |
| 50 | 1549 | 7,345668216 |
| 51 | 1603 | 7,379725723 |
| 52 | 1474 | 7,295517953 |
| 53 | 1552 | 7,3470226 |
| 54 | 1609 | 7,383660211 |
| 55 | 1564 | 7,355136183 |
| 56 | 1512 | 7,320904125 |
| 57 | 1556 | 7,349732307 |
| 58 | 1487 | 7,304758015 |
| 59 | 1535 | 7,336109749 |
| 60 | 1533 | 7,334740493 |
| 61 | 1453 | 7,281130986 |
| 62 | 1512 | 7,320904125 |
| 63 | 1517 | 7,324384502 |
| 64 | 1469 | 7,292657071 |
| 65 | 1556 | 7,349732307 |
| 66 | 1480 | 7,299797367 |
| 67 | 1522 | 7,327846239 |
| 68 | 1462 | 7,287629037 |
| 69 | 1538 | 7,338166626 |
| 70 | 1469 | 7,292657071 |
| 71 | 1419 | 7,257665393 |
| 72 | 1463 | 7,288346925 |
| 73 | 1468 | 7,291942272 |
| 74 | 1372 | 7,223711348 |
| 75 | 1464 | 7,289071127 |
| 76 | 1402 | 7,245726392 |
| 77 | 1449 | 7,278953251 |
| 78 | 1344 | 7,203561759 |
| 79 | 1427 | 7,263581863 |
| 80 | 1408 | 7,250223788 |
| 81 | 1365 | 7,219100166 |
| 82 | 1439 | 7,27166201 |
| 83 | 1413 | 7,253208494 |
| 84 | 1520 | 7,326465614 |
| 85 | 1396 | 7,241208678 |
| 86 | 1329 | 7,192535646 |
| 87 | 1342 | 7,20199083 |
| 88 | 1414 | 7,253951512 |
| 89 | 1433 | 7,267267195 |
| 90 | 1422 | 7,259889931 |
| 91 | 1404 | 7,247230146 |
| 92 | 1329 | 7,192535646 |
| 93 | 1392 | 7,238187885 |
| 94 | 1367 | 7,220637152 |
| 95 | 1419 | 7,257665393 |

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| 96 | 1420 | 7,258412151 |
| 97 | 1289 | 7,16198656 |
| 98 | 1380 | 7,229838778 |
| 99 | 1406 | 7,248724532 |
| 100 | 1355 | 7,211357451 |
| 101 | 1421 | 7,259151314 |
| 102 | 1397 | 7,241967822 |
| 103 | 1347 | 7,205902401 |
| 104 | 1362 | 7,216782905 |
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| 109 | 1293 | 7,164434182 |
| 110 | 1273 | 7,148840904 |
| 111 | 1345 | 7,204342582 |
| 112 | 1309 | 7,177377754 |
| 113 | 1289 | 7,16198656 |
| 114 | 1339 | 7,199633535 |
| 115 | 1243 | 7,12540376 |
| 116 | 1379 | 7,229070367 |
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| 118 | 1280 | 7,154615357 |
| 119 | 1312 | 7,178980172 |
| 120 | 1324 | 7,188571334 |
| 121 | 1277 | 7,152143555 |
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| 123 | 1277 | 7,152143555 |
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| 126 | 1299 | 7,169303826 |
| 127 | 1267 | 7,144691276 |
| 128 | 1271 | 7,147181544 |
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| 132 | 1223 | 7,109184777 |
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| 134 | 1266 | 7,143862438 |
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| 137 | 1269 | 7,14635477 |
| 138 | 1275 | 7,15048967 |
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| 143 | 1240 | 7,122866659 |
| 144 | 1293 | 7,164434182 |

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| 339 | 748 | 6,617964318 |
| 340 | 743 | 6,610897909 |

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| 377 | 664 | 6,498598365 |
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| 379 | 668 | 6,504916718 |
| 380 | 662 | 6,495416602 |
| 381 | 678 | 6,518985033 |
| 382 | 661 | 6,49382948 |
| 383 | 632 | 6,448208783 |
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| 396 | 624 | 6,43648685 |
| 397 | 651 | 6,477772043 |
| 398 | 601 | 6,398678126 |
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